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Wiiliam C. Fuess
FUESS & DAVIDENAS
Attorneys at law
10951 Sorrento Valley Road, Suite II-G
San Diego, CA 92121-1613

EXAMINER	
THERIAULT, STEVEN B	

ART UNIT	PAPER NUMBER
2179	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/081,841	CARLIN, BRUCE	
	Examiner	Art Unit	
	STEVEN B. THERIAULT	2179	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _26 November 2007_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _20-41_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _20-41_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the following communications: RCE filed on 11/26/2007. A petition decision was also granted to vacate the notice of abandonment.

2. Claims 20-41 are pending in the case. Claims 1-19 are the cancelled claims. Claims 20, 23, 31, 33, 37, 38, 39 and 40 are the independent claims. **This rejection includes two separate rejections with the second rejection starting on page 26.**

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/26/2007 has been entered.

Claim Rejections - 35 USC § 103

3. **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action**:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 20-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (hereinafter Smith) U.S. Patent No. 6,052,669 B1 issued Apr. 27, 2004 in view of Technicon Inc. et al, (hereinafter Technicon) "Showroom Demo", Feb. 1999, http://web.archive.org/web/19990224120825/www.technicon.com/showroomdemo/main.**

html, in further view of Daniel Schneider et al. (hereinafter Schneider) "Introduction to the VRML standard and 3D graphics", 1998.

In regard to **Independent claim 20**, Smith teaches a computerized method of generating and rendering over a digital communications network a high-quality perspective view of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

- Producing or selecting at a first computer upon a digital network
  - An 3D model of the background, or, equivalently, precursors of the 3D background model, or, equivalently, one or more related 2D view of the background scene suitable to serve as precursors of the 3D background model (Smith figure 8 and column 3, lines 56-67) Smith expressly shows the perspective view of office furniture in a 3D format with a particular background scene. Smith teaches the system will model the furniture in a scene that will serve as a model for a finished product. Smith teaches the modeling tool, as shown in figure 3, and figure 8, shows the product in its final configuration and in a 3D format (See column 9, lines 35-63).
  - For (1b) and (1c) associated dimensional information of the particular scene and (Smith column 9, lines 65-67 and column 10, lines 1-35 and Figure 9) Smith shows the process of associated dimensional information to the object with the scene.
  - A suitably- real world object positioned and oriented in the background scene; (Smith figure 8 and 9) Smith shows a real-world object (office furniture) within the background scene (See also column 9, lines 35-63).
  - For which companion low-quality stand-in 3D models are derived or selected for use in rendering a preview image at the first computer (Smith figures 7-9 and column 9, lines 1-67) Smith shows models in 3d of the objects along with preview of the object and a preview of the layout of the object within the scene.
  - Using scene editing software on the first computer to place the object in the scene, while rapidly rendering the scene at the first computer using the companion low quality stand-ins to guide the placement (Smith column 7, lines 1-67 and Figures 7-9) Smith expressly

shows scene editing software where the perspective view of an image is shown with the image in a specific angle that can be rotated (see 162 AND 164) and where the user can perform as many iterations as they desire (See column 10, lines 1-41).

- Transmitting from the first computer upon the digital communications network the information (1)-(2) and the identity of the selected object and its location, orientation and other parameters; (Smith column 5, lines 29-35).
- Receiving at another, second, computer upon the digital communications network the background scene information and object and parameters; (Smith column 5, lines 29-67).
- Deriving in the second computer if not transmitted from the first computer a high-quality 3D background model the of represented and selected 3D background scene; (Smith column 6, lines 1-67).
- Utilizing in second computer the background scene information and the identified parameters and any derived high-quality 3D background-scene model to generate and render in consideration of a camera position and orientation, a perspective view image of the selected object in the 3D scene (Smith column 6, lines 1-67 and figures 7-14).
- Transmitting from the second computer upon the digital communications network the perspective view image; and receiving at the first computer upon the digital communications network this perspective view image; and displaying at the first computer perspective view image; (Smith column 5, lines 29-67) Smith teaches the use of network computers to perform processing where the modeling tool and databases can be located on the network
- Wherein object, having associated geometry, is rendered with specified parameters in proper scale, position and rotation with the perspective view image; (Smith column 6, lines 1-67 and figures 7-14) Smith shows the ability to render an object with associated geometry and scale and position and rotation information
- Wherein object selection, parameterization, placement and orientation in the scene made interactively over a digital network supports the generation of a perspective view image

having proper parameterization and perspective showing an object located and oriented within a 3D scene (Smith figures 7-14) Smith shows the object that is selected and displayed from the user perspective within a 3D scene.

Smith fails to expressly teach:

- a preview quality perspective view image of the object positioned and oriented in the background scene from the desired viewing angle and camera position for use in allowing a rapid, iterative evaluation and modification of the scene until the desired perspective view of the scene is obtained, and then
- Wherein the entire computer generated perspective view image is rendered and viewed with the same proper perspective that a **conventional photo of the same scene would exhibit**, if captured by a camera; and

Smith teaches that a user is able to obtain a realistic display of an office configuration (See column 4, lines 18-21) and that a snapshot can be taken of the configuration and the rendered image is enhanced (See column 10, lines 35-40). Smith also does not expressly teach displaying a high quality image in the scene and displaying it at the desired viewing angle and modifying it until the desired scene is presented. Smith does not teach that the image is rendered as a conventional photo. Technicon teaches an on-line catalog system that provides 3D photo-realistic images to a customer instantaneously as well as placing the images within a 3D room, for the purpose of providing a customer with a realistic view of the how the furniture will appear once the furniture is purchased. While Technicon does not specifically mention the camera angle and positioning in the image, Technicon specifically teaches using VRML. Schneider teaches the VRML standard can present 3D scenes in a browser. Schneider teaches that the user, via a VRML browser, can navigate and view 3D scenes dynamically where a camera angle of choice is specified by the user (See Schneider page 2, bottom). Schneider teaches the browser can interact with the system and present a different interface and present objects differently to the user. Some browsers can perform fast rendering and some can provide slower rendering but higher quality. The combination of Smith's adjustment of the product in the image viewer with the

rendering of Technicon would allow for a structure that uses Schneider to render a high quality image in the browser from a camera angle (See Schneider page 2). Smith, Schneider and Technicon are analogous art because they are from the same field of endeavor of providing online software to provide 3D representations of furniture or other objects in realistic settings.

Accordingly, It would have been obvious to one of ordinary skill in the art, having the teachings of the Smith and Technicon and Schneider before him at the time of the invention was made, to modify the system of Smith to incorporate the photorealistic image as taught by Technicon and Schneider, in order to obtain a system that is able to display the furnishings as photorealistic pictures. One would have been motivated to make such a combination because of the need to allow salespeople or customers to realistically view images in a potential final configuration in the customers home or office which will shorten sales cycles by viewing the images directly, reduce costs by obtaining sales online and eliminate product configuration errors as taught by Technicon.

With respect to **dependent claim 21,** Smith teaches the computerized method of generating and rendering a high quality perspective view image wherein the iterations are further for illuminating the object in the scene so as to develop lighting parameters; wherein the communicating is also of the lighting parameters; and wherein the rendering of the second, high quality perspective view image of the 3D object located and oriented in the 3D scene is further in consideration of the developed lighting parameters (Smith column 6 lines 1-25)

With respect to **dependent claim 22,** as indicated in the above discussion, Smith in view of Technicon teaches every element of claim 20.

Smith fails to expressly teach/disclose the computerized method of generating and rendering a high quality perspective view image wherein the iteration is further for specifying quality

parameters of the object in the scene; wherein the communicating is also of the quality parameters; and wherein the rendering of the second, high quality perspective view image of the object located and oriented in the scene is further in consideration of the specified quality parameters. However, this limitation would have been obvious to one of ordinary skill at the time the invention was made in view of Technicon and Schneider because Technicon teaches a process of allowing the user to select a product and the system will display the product in a photorealistic high quality from high quality graphics servers where quality is a measure of the realistic looking features of the picture and Schneider teaches the VRML standard implemented by Technicon to render the VRML images in a browser from a server. Smith, Schneider and Technicon to allow the user to view the image as close to real life as possible in catalogs of furniture for an office and render the user selections on the screen. Technicon and Smith are also analogous art because they both attempt to solve a similar problem of reducing the time involved in the sales process by eliminating and showing realistic depictions of the end product in the proposed environments.

In regard to **Independent claim 23,** Smith teaches *a computerized method of generating and rendering over a digital communications network a high quality perspective view image of a three-dimensional (3D) object that can exist in the real world located within, surrounding, or in front of, a 3D scene that can also exist in the real world, the method of presenting a 3D perspective image of a 3D object in a 3D scene comprising*:

- *Rendering at a first computer, communicative upon a digital communications network, a first, low quality, perspective image of a 3D object in a 3D scene* (Smith figures 7-14 and column 5, lines 25-67) Smith shows the display of low quality depictions of the office furniture selectable prior to being rendered in a 3D scene. The objects are 3D and orientated from the user perspective in a room
    - *(1) a low quality 3D model of the suitably-real-world object,* (Smith Figure 8) Smith shows a real world desk in a 3D model

- (*2) a relatively low quality 3D model of a selected suitably-real-world scene, in consideration of* (Smith figure 8) Smith shows a real world scene of a room
- (*3) a selected 3D coordinate position and angular orientation of the 3D object in the 3D scene*, (Smith figure 8) Smith shows the desk at a specific angle and angle of the object and the scene
- *(5) Scene and object size;* (Smith column 6, lines 1-67)
- (*6) Parameter of the scene lighting,* (Smith column 6, lines 1-67)
- (7) Parameters of resolution of any one or both of the object and of the scene; (Smith column 6, lines 1-67)

* Wherein this first, *low quality* perspective view image simply shows the 3D object located and oriented in the 3D scene; (Smith figure 8) communicating from the first computer upon the digital communications network the information (1)-(7) to a second computer; Smith column 5, lines 1-67) Smith teaches a network with servers that can perform complex tasks along with the client.
* From information (1), selecting in the second computer (1a) a high-quality 3D model of the selected suitably-real-world object, and from information (2), receiving at, selecting or generating in the second computer (2a) a high-quality 3D model of the selected suitably-real-world scene; rendering at the second computer a second, high-quality, perspective view image from (1) the high-quality 3D model of the selected object, or derivatives or extensions of this model, and (2a) the high-resolution 3D model of the scene, or derivatives or extensions of this model, in consideration of at least the information (3)-(7); (Smith figures 7-14 and column 5, lines 1-67)
* Wherein the second, high-quality, perspective view image is a high-quality image of the 3D object in the 3D scene (Smith column 10, lines 1-67)
* Communicating from the second computer upon the digital communications network to the first computer the second, high-quality 3D perspective view image; (Smith column 5, lines 1-67 and column 10, lines 1-67)

- Displaying at the first computer this second, high-quality perspective view image (Smith figures 7-14).

Smith fails to expressly disclose:

- Wherein the second, high-resolution, 3D composite image **is a photorealistic image** of the 3D object in the 3D scene;
- (*4) location and orientation of a camera view onto the scene*, (Smith figures 7)

Smith teaches that a user is able to obtain a realistic display of an office configuration (See column 4, lines 18-21) and that a snapshot can be taken of the configuration and the rendered image is enhanced (See column 10, lines 35-40). Smith also does not expressly teach displaying a high quality image in the scene and displaying it at the desired viewing angle and modifying it until the desired scene is presented. Smith does not teach that the image is rendered as a conventional photo. Technicon teaches an on-line catalog system that provides 3D photo-realistic images to a customer instantaneously as well as placing the images within a 3D room, for the purpose of providing a customer with a realistic view of the how the furniture will appear once the furniture is purchased. While Technicon does not specifically mention the camera angle and positioning in the image, Technicon specifically teaches using VRML. Schneider teaches the VRML standard can present 3D scenes in a browser. Schneider teaches that the user, via a VRML browser, can navigate and view 3D scenes dynamically where a camera angle of choice is specified by the user (See Schneider page 2, bottom). Schneider teaches the browser can interact with the system and present a different interface and present objects differently to the user. Some browsers can perform fast rendering and some can provide slower rendering but higher quality. The combination of Smith's adjustment of the product in the image viewer with the rendering of Technicon would allow for a structure that uses Schneider to render a high quality image in the browser from a camera angle (See Schneider page 2). Smith, Schneider and Technicon are analogous art because they are from the same field of endeavor of providing online software to provide 3D representations of furniture or other objects in realistic settings.

Accordingly, It would have been obvious to one of ordinary skill in the art, having the teachings of the Smith and Technicon and Schneider before him at the time of the invention was made, to modify the system of Smith to incorporate the photorealistic image as taught by Technicon and Schneider, in order to obtain a system that is able to display the furnishings as photorealistic pictures. One would have been motivated to make such a combination because of the need to allow salespeople or customers to realistically view images in a potential final configuration in the customer's home or office which will shorten sales cycles by viewing the images directly, reduce costs by obtaining sales online and eliminate product configuration errors as taught by Technicon.

With respect to **dependent claim 24,** as indicated in the above discussion, Smith in view of Technicon teaches every element of claim 23.

Smith fails to expressly teach/disclose the method exercised to the purpose that a prospective purchaser of the suitably-real-world 3D object may be rendered the second, high quality perspective view of a 3D object that is a virtual object; wherein should the virtual object be made real in the world, then it would not merely suitably exist within the suitably-real-world 3D scene, but would suitably so exist as depicted in the second, photorealistic, perspective view image. However, this limitation would have been obvious to one of ordinary skill at the time the invention was made in view of Technicon and Schneider because Technicon by implementing the VRML standard as taught by Schneider teaches a process of allowing the user to select a product and the system will display the product in a photorealistic high quality from high quality graphics servers where the objects are separate and individual items in the display and shown as if built and made already for the user as taught by Technicon (See page 3). Smith, Schneider and Technicon allow the user to browse through catalogs of furniture for an office and render the user selections on the screen. Technicon and Smith are also analogous art because they both attempt to solve a similar problem of reducing the time involved in the sales process by eliminating and showing

realistic depictions of the end product in the proposed environments.

With respect to **dependent claim 25,**Smith teaches the method wherein the rendering at a first computer of the first, low quality, perspective view image is from (1) a low-quality 3D model of a scene derived at the first computer (Smith figures 7-14)

With respect to **dependent claim 26,** Smith teaches the method wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality 3D model of the object received upon the communications network from the second computer as a model dynamically generated from specifications provided to the second computer by the first computer (Smith column 10, lines 1-37) Smith teaches the modeling tool is a separate tool that can reside on a server or second computer that dynamically takes the specifications of the image and provides the image to the client.

With respect to **dependent claim 27,** Smith teaches the method wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality model of the object received upon the communications network from a third computer as a model from a pre-existing catalog of low-resolution 3D object models. (Smith column 5, lines 35-55).

With respect to **dependent claim 28,** Smith teaches the method wherein the rendering at a first computer of the first, low-quality, perspective view image is from (2) a low-quality 3D model of the scene received upon the communications network from the second computer as a model dynamically generated from specifications provided to the second computer by the first computer (Smith column 5, lines 35-55).

With respect to **dependent claims 29 and 30,** Smith teaches the method wherein the rendering at a first computer of the first, low-quality, perspective view image is from (2) a low-quality 3D model of the scene received upon the communications network from a third computer as a model from a pre-existing catalog of low-resolution 3D object models and where the real world object is an object for sale. (Smith column 5, lines 35-55).

In regard to **Independent claim 31,** Smith *teaches a computerized method of generating and rendering over a digital communications network a perspective view of a three-dimensional object that can exist in the real world located within a three-dimensional space that can also exist in the real world, the method of presenting a perspective view image of a 3D object in a 3D space comprising*:

- Using at a client computer upon a digital communications network (1) one or more accurately-scaled 3D models representing one or more associated suitably-real-world 3D objects, and (2) an accurately-scaled model of a 3D scene in which 3D scene the suitably-real-world 3D objects can exist, (4) associated placement and rotational information regarding where and at what positional attitude the one or more 3D objects are placed within the 3D scene; (Smith figures 7-14 and column 6, lines 1-25) Smith shows a 3d object and scene and where the client uses a network of computers to model the environment and where rotational and placement information is manipulated by the user.
- Transmitting from the first computer upon the digital communications network the information (1)-(4); (Smith column 5, lines 35-55)
- Receiving at another, second, computer upon the digital communications network the information (l)-(4); (Smith column 5, lines 35-55)
- In the second computer in accordance with at least the information (1) selecting or generating (1a) a detailed, model of the one or more 3D objects, in accordance with at least the information (2) selecting or generating (2a) a detailed, model of the 3D scene, and in accordance with the (1a) and (2a) models, and information (3)-(4) and

extensions thereof, a perspective view image of the one or more 3D objects properly scaled, located and oriented within the 3D scene; (Smith column 5, lines 35-55)

- Then transmitting from the second computer upon the digital communications network this perspective view image; (Smith column 5, lines 35-55)
- Receiving at the first computer upon the digital communications network this perspective view; (Smith column 5, lines 35-55)
- Displaying at the first computer this perspective view. (Smith figure 7-14)

Smith does not expressly disclose:

- A high-quality, model of the one or more 3D objects
- (3) associated scene camera and lighting parameters,

Technicon teaches an on-line catalog system that provides 3D photo-realistic high quality images to a customer instantaneously as well as placing the images within a 3D room, for the purpose of providing a customer with a realistic view of the how the furniture will appear once the furniture is purchased (Technicon page 3, lines 1-10). Technicon teaches implementing the VRML standard to display 3D images in a browser. Technicon teaches using a graphics server to render the product images. Schneider teaches rendering the images in the browser from a given camera angle (See Schneider page 2). Smith, Schneider and Technicon are analogous art because they are from the same field of endeavor of providing online software to provide 3D representations of furniture or other objects in realistic settings.

Accordingly, It would have been obvious to one of ordinary skill in the art, having the teachings of the applicant submitted prior art, Smith, Schneider and Technicon before him at the time of the invention was made, to modify the system of Smith to incorporate the high quality as taught by Technicon and Schneider, in order to obtain a system that is able to display high quality pictures to meet the need to allow salespeople or customers to realistically view images in a potential final configuration in the customers home or office which will shorten sales cycles by viewing the images directly, reduce costs by obtaining sales online and eliminate product configuration errors as taught by Technicon.

With respect to **dependent claim 32,** as indicated in the above discussion, Smith in view of Technicon teaches every element of claim 31.

Smith fails to expressly teach/disclose the method exercised to the purpose that a prospective purchaser of one or more of the one or more suitably-real-world objects may be rendered the high-quality perspective view image where at least one of the one or more 3D objects is a virtual object not existing in the world, and which might only suitably exist within the suitably-real-world 3D scene; wherein even though at least one 3D object shown in the high-resolution 3D perspective view is virtual and does not actually exist, the 3D object both (i) could exist, and (ii) could exist as so shown within the high- quality perspective view. However, this limitation would have been obvious to one of ordinary skill at the time the invention was made in view of Technicon because Technicon teaches a process of allowing the user to select a product and the system will display the product in a photorealistic high quality from high quality graphics servers where the objects are separate and individual items in the display and shown as if built and made already for the user as taught by Technicon (See page 3). Technicon also teaches implementing VRML which allows 3D images to be displayed in a browser that are downloaded from a URL. The images are presented in a virtual manner and from a given camera perspective. Smith, Schneider and Technicon both allow the user to browse through catalogs of furniture for an office and render the user selections on the screen. Technicon and Smith are also analogous art because they both attempt to solve a similar problem of reducing the time involved in the sales process by eliminating and showing realistic depictions of the end product in the proposed environments.

In regard to **Independent claim 33,** Smith teaches a computerized method of producing a high resolution photorealistic 3D image on and between at least two computers communicating over a digital communications network, the method comprising:

- Providing from a server computer across a digital communications network to a client computer (i) a catalog of small, low-quality, 3D graphics models of objects and (ii) at least one model of a scene in which the objects may exist; (Smith figures 7-14 and column 5, lines 25-67) Smith shows the display of low quality depictions of the office furniture selectable prior to being rendered in a 3D scene. The objects are 3D and orientated from the user perspective in a room

- Selecting at the client computer one or more objects and at least one scene; (Smith figures 7-14) Smith shows the selection of one or more objects in a room
- Communicating these selections from the client computer across the communications network to the server computer; (Smith column 5, lines 1-67) Smith teaches the communicating selections from the client to a server.
- Responsively to receipt of the selections, providing from the server computer across the communications network to the client computer a set of at least the associated small, low-quality 3D models; (Smith column 5, lines 1-67).
- Manually manipulating at the client computer spatial (i) positions and orientations of a selected one or more object models from the set of models (ii) within the at least one scene model, and rendering at the client computer from these object and scene models, a first, rudimentary, low-quality perspective view image of the one or more selected objects in the at least one scene, this low-resolution 3D image being used as a preview; (Smith column 7, lines 1-67 and Figures 7-9) Smith expressly shows scene editing software where the perspective view of an image is shown with the image in a specific angle that can be rotated (see 162 AND 164) and where the user can perform as many iterations as they desire (See column 10, lines 1-41).
- Communicating, from the client computer across the communications network to the sever computer, at least lighting and image size and resolution parameters, and positional placements and orientations of each of the selected and manipulated one or more objects in the at least one scene; (Smith column 5, lines 1-67 and column 6, lines 1-35)

Smith fails to expressly disclose:

- From the received positional placements and orientations of the selected one or more objects, **camera parameters and** rendering in the server computer from associated large **high-quality 3D models** of the selected one or more objects and of the at least one scene, a **photorealistic**, 3D high-quality perspective image of the selected one or more objects located and oriented in the scene;
- Communicating from the sever computer upon the digital communications network to the client computer the photo realistically-rendered high-quality 3D perspective view composite image;
- Displaying at the client computer this photo realistically-rendered high-quality 3D perspective view image

Smith teaches that a user is able to obtain a realistic display of an office configuration (See column 4, lines 18-21) and that a snapshot can be taken of the configuration and the rendered image is enhanced (See column 10, lines 35-40). Smith also does not expressly teach displaying a high quality image in the scene and displaying it at the desired viewing angle and modifying it until the desired scene is presented. Smith does not teach that the image is rendered as a conventional photo. Technicon teaches an on-line catalog system that provides 3D photo-realistic images to a customer instantaneously as well as placing the images within a 3D room, for the purpose of providing a customer with a realistic view of the how the furniture will appear once the furniture is purchased. While Technicon does not specifically mention the camera angle and positioning in the image, Technicon specifically teaches using VRML. Schneider teaches the VRML standard can present 3D scenes in a browser. Schneider teaches that the user, via a VRML browser, can navigate and view 3D scenes dynamically where a camera angle of choice is specified by the user (See Schneider page 2, bottom). Schneider teaches the browser can interact with the system and present a different interface and present objects differently to the user. Some browsers can perform fast rendering and some can provide slower rendering but higher quality. The combination of Smith's adjustment of the product in the image viewer with the

rendering of Technicon would allow for a structure that uses Schneider to render a high quality image in the browser from a camera angle (See Schneider page 2). Smith, Schneider and Technicon are analogous art because they are from the same field of endeavor of providing online software to provide 3D representations of furniture or other objects in realistic settings.

Accordingly, It would have been obvious to one of ordinary skill in the art, having the teachings of the Smith and Technicon and Schneider before him at the time of the invention was made, to modify the system of Smith to incorporate the photorealistic image as taught by Technicon and Schneider, in order to obtain a system that is able to display the furnishings as photorealistic pictures. One would have been motivated to make such a combination because of the need to allow salespeople or customers to realistically view images in a potential final configuration in the customer's home or office which will shorten sales cycles by viewing the images directly, reduce costs by obtaining sales online and eliminate product configuration errors as taught by Technicon.

With respect to **dependent claims 34 and 36,** as indicated in the above discussion, Smith in view of Technicon teaches/discloses every element of claim 33.

Smith fails to expressly teach/disclose *the computerized method of producing a high quality photorealistic image wherein the photo realistically-rendered high-quality 3D composite image is suitable to serve as advertising copy, meaning in particular that it is devoid of clearly visible defects; wherein a 3D graphic artist of this photo realistically-rendered high-quality 3D composite image who performs selections and manipulations at the client computer need not have to attend to, and did not actually attend to, the building of the 3D models and any textures, or rendering which building transpired elsewhere*.

Technicon teaches an on-line catalog system that provides 3D photo-realistic images to a customer instantaneously as well as placing the images within a 3D room, for the purpose of providing a customer with a realistic view of the how the furniture will appear once the furniture is

purchased without a user tending to the building of the 3D models or rendering as the system performs these functions (Technicon page 3, lines 1-10). Technicon also teaches the process of using the saved room configurations in advertising copies (Technicon page 7, pictures 1-4 and Akasha Engineers). Additionally, Technicon shows the ability to render within a browser the furniture configurations without an artist having to touch the images (Technicon page 8) Smith and Technicon are analogous art because they are from the same field of endeavor of providing online software to provide 3D representations of furniture or other objects in realistic settings.

Accordingly, It would have been obvious to one of ordinary skill in the art, having the teachings of the applicant submitted prior art, Smith and Technicon before him at the time of the invention was made, to modify the system of Smith to incorporate the high quality photorealistic images as taught by Technicon, in order to obtain a system that is able to display high quality pictures to address the need to allow salespeople or customers to realistically view images in a potential final configuration in the customers home or office which will shorten sales cycles by viewing the images directly, reduce costs by obtaining sales online and eliminate product configuration errors as taught by Technicon.

With respect to **dependent claim 35,** as indicated in the above discussion, Smith in view of Technicon teaches every element of claim 34.

Smith teaches the computerized method of producing images wherein the building of the 3D models and any textures transpired in a model-building computer (See column 10, lines 1-67)

Smith fails to disclose high quality photorealistic image processing However, this limitation would have been obvious to one of ordinary skill at the time the invention was made in view of Technicon because Technicon teaches a process of allowing the user to select a product and the system will display the product in a photorealistic high quality from high quality graphics servers as taught by Technicon (See page 3). Smith and Technicon both allow the user to browse through catalogs of

furniture for an office and render the user selections on the screen. Technicon and Smith are also analogous art because they both attempt to solve a similar problem of reducing the time involved in the sales process by eliminating and showing realistic depictions of the end product in the proposed environments.

In regard to **Independent claim 37,** Smith teaches *a method of rendering at high quality a photorealistic 3D image as a business service on a digital communications network, the high resolution photorealistic 3D image rendering business service comprising*:

- *Providing from a server computer across the digital communications network to a client computer any of (i) a catalog of small, low-resolution, 3D graphics models, or (ii) a tool for generating small, low-resolution, 3D graphics models, or (iii) an actual, small, low-resolution, 3D graphics models of at least (1) objects and (2) scenes in which the objects may exist*; (Smith figures 7-14 and column 5, lines 25-67) Smith shows the display of low quality depictions of the office furniture selectable prior to being rendered in a 3D scene. The objects are 3D and orientated from the user perspective in a room
- *Receiving at the server computer upon the digital communications network from the client computer information as to the identities of at least one object and at least one scene selected from the catalog, and further information as to the lighting parameters and image size and resolution and where and at what orientations selected identified objects are to be placed and oriented in the selected scene*; (Smith column 5, lines 1-67 and column 6, lines 1-35)
- Responsively to received information and further information, rendering in the server computer from associated 3D models of each selected object and also of the identified scene, a perspective view image of each selected object located and oriented in the identified scene; and communicating from the sever computer upon the digital communications network to the client computer this rendered perspective view image; (Smith column 5, lines 1-67 and column 6, lines 1-35)

- Wherein the client computer is provided with a rendered perspective view image without necessity of either (i) having the models from which this perspective view image is rendered, or (ii) rendering this perspective view image itself. (Smith column 5, lines 1-67 and column 6, lines 1-35)
- Smith does not expressly disclose:
    - ***High quality perspective view images and camera parameters***

Smith teaches that a user is able to obtain a realistic display of an office configuration (See column 4, lines 18-21) and that a snapshot can be taken of the configuration and the rendered image is enhanced (See column 10, lines 35-40). Smith also does not expressly teach displaying a high quality image in the scene and displaying it at the desired viewing angle and modifying it until the desired scene is presented. Smith does not teach that the image is rendered as a conventional photo. Technicon teaches an on-line catalog system that provides 3D photo-realistic images to a customer instantaneously as well as placing the images within a 3D room, for the purpose of providing a customer with a realistic view of the how the furniture will appear once the furniture is purchased. While Technicon does not specifically mention the camera angle and positioning in the image, Technicon specifically teaches using VRML. Schneider teaches the VRML standard can present 3D scenes in a browser. Schneider teaches that the user, via a VRML browser, can navigate and view 3D scenes dynamically where a camera angle of choice is specified by the user (See Schneider page 2, bottom). Schneider teaches the browser can interact with the system and present a different interface and present objects differently to the user. Some browsers can perform fast rendering and some can provide slower rendering but higher quality. The combination of Smith's adjustment of the product in the image viewer with the rendering of Technicon would allow for a structure that uses Schneider to render a high quality image in the browser from a camera angle (See Schneider page 2). Smith, Schneider and Technicon are analogous art because they are from the same field of endeavor of providing online software to provide 3D representations of furniture or other objects in realistic settings.

Accordingly, It would have been obvious to one of ordinary skill in the art, having the teachings of the Smith and Technicon and Schneider before him at the time of the invention was made, to modify the system of Smith to incorporate the photorealistic image as taught by Technicon and Schneider, in order to obtain a system that is able to display the furnishings as photorealistic pictures. One would have been motivated to make such a combination because of the need to allow salespeople or customers to realistically view images in a potential final configuration in the customer's home or office which will shorten sales cycles by viewing the images directly, reduce costs by obtaining sales online and eliminate product configuration errors as taught by Technicon.

In regard to **Independent claim 38,** Smith teaches a method performed by (i) a relatively simple client computer running relatively simple software (ii) connected upon a digital communications network to (iii) a relatively powerful graphics server computer running relatively sophisticated graphics image rendering software, of deriving at the client computer a perspective view image as is a typical product of the graphics server computer and beyond the capabilities of the client computer and software operating therein, the method by which a networked client computer may bootstrap itself to production of a perspective view image comprising:

  - Receiving in the client computer from the graphics server computer across the digital communications network a catalog of, or tool for generating low-resolution 3D graphics models for selected (1) objects and (2) scenes in which the objects may exist; (Smith figures 7-14 and column 5, lines 25-67) Smith shows the display of low quality depictions of the office furniture selectable prior to being rendered in a 3D scene. The objects are 3D and orientated from the user perspective in a room

- Selecting at the client computer objects and at least one scene from the catalog and downloading the selected objects and/or scene from the graphics server computer across the communications network, or, alternatively as the case may be, generating with the tool object and/or scene models; (Smith column 5, lines 25-35)
- Manipulating at the client computer the received and/or generated low-resolution models to derive spatial positions and orientations of objects within a scene; (Smith figures 7-14).

- Communicating these object positional placements and orientations, and also camera, lighting and image size and resolution parameters, across the communications network to the graphics server computer; (Smith column 6, lines 1-35).

Smith does not expressly disclose:

- Receiving back from the graphics server computer upon the digital communications network a photorealistic 3D high-resolution composite image of the objects placed, oriented, illuminated and viewed from a perspective, as were all derived from the manipulating, and as were communicated to the graphics server computer and displaying at the client computer this photo realistically-rendered high-quality perspective view image

Technicon teaches an on-line catalog system that provides 3D photo-realistic images to a customer instantaneously as well as placing the images within a 3D room, for the purpose of providing a customer with a realistic view of the how the furniture will appear once the furniture is purchased (Technicon page 3, lines 1-10 and page 6). Technicon also teaches the implementation of VRML that allows the user to view virtual 3D images in a browser. The images can be rendered in a variety of manners according to Schneider, which can include fast rendering, or slow rendering but high quality. Schneider teaches presenting the images at a camera angle determined by the user (See Schneider page 2). Smith, Schneider and Technicon are analogous art because they are from the same field of endeavor of providing online software to provide 3D representations of furniture or other objects in realistic settings.

Accordingly, It would have been obvious to one of ordinary skill in the art, having the teachings of the applicant submitted prior art, Smith, Schneider and Technicon before him at the time of the invention was made, to modify the system of Smith to incorporate the online catalog as taught by Technicon, in order to obtain a system that is able to display the high-quality perspective view images. One would have been motivated to make such a combination because of the need to shorten sales cycles by viewing the images directly, reduce costs by obtaining sales online and eliminate product configuration errors as taught by Technicon.

With respect to **Independent claim 39,** Smith teaches a computerized method of generating and rendering over a digital communications network a high quality perspective view image of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

Producing at a first computer running a 3D scene editor, digital content creation, computer aided design or browser program with or without a plug-in a 3d scene file (Smith figures 7-14) Smith shows a scene editor

Receiving at another, second, powerful graphics computer upon the digital communications network the scene file (Smith column 5, lines 1-67) Smith teaches a modeling tool that can be located on a remote computer that contains configuration information about the 3d images on the screen.

Utilizing in the second computer the scene file to generate and render in consideration of (5) a camera position and orientation specified in the scene file, (6) a perspective view image of the selected object in the 3D scene and then transmitting from the second computer upon the digital communications network the (6) perspective view image; and receiving at the first computer upon the digital communications network this (6) perspective view image and displaying at the first computer this (6) perspective view image; (Smith figure 8 and column 3, lines 56-67) Smith expressly shows the perspective view of office furniture in a 3D format with a particular background scene where the modeling tool manipulates the 3D information in a configuration file and the modeling tool returns the reconfigured information to the client for display.

Wherein the object, having an associated geometry, is rendered in proper (1) scale, (2) position and (3) rotation within the perspective view image; (Smith figure 8 and column 6, lines 1-35) Smith shows the 3d picture contains associated geometry, scale and rotation information

Wherein the entire computer generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera; and (Smith column 10, lines 35-45) Smith teaches using a snapshot tool to sharpen and add depth to the picture to make it look more realistic as if captured by a camera

Wherein the scene specification, made interactively over a digital communications network, supports the relatively rapid ray-traced rendering of a perspective view image having proper perspective, showing an object located and oriented within a 3D scene. (Smith column 10, lines 35-45).

With respect to **Independent claim 40,** Smith teaches a computerized method of generating and rendering over a digital communications network a high-quality perspective view image that can exist the real world located within, surrounding, or in front of a three-dimensional scene that can also exist in the real world, the method of presenting the perspective view of an object in a 3D scene comprising:

Producing at a first computer running a 3D scene editor, Digital Content Creation, Computer Aided Design, or browser program with or without a plug-in a 3D scene file containing references to 3D objects on the second computer; (Smith figures 7-14 and column 5, liens 30-67) Smith shows a scene editor and the ability to have the complex graphical processing occur on remote servers which include a graphics server as taught by having a CAD package.

Transmitting from the first computer upon the digital communications network the scene file; (Smith column 5, lines 40-45)

Receiving at another, second, powerful graphics computer upon the digital communications network the scene file; (Smith column 5, lines 40-45)

Utilizing in the second computer the scene file to generate and render consideration of (6) a perspective view image of the selected object in the 3D scene and then transmitting from the second computer upon the digital communications network the (6) perspective view image; and receiving at the first computer upon the digital communications network this (6) perspective view image displaying at the first computer this (6) perspective view image; (Smith figure 8 and column 3, lines 56-67) Smith expressly shows the perspective view of office furniture in a 3D format with a particular background scene and camera position and where the modeling tool manipulates the 3D information in a configuration file and the modeling tool returns the reconfigured information to the client for display (See metafile).

Wherein the object, having an associated geometry, is rendered in proper (1) scale, (2) position and (3) rotation within the perspective view image; (Smith figure 8 and column 6, lines 1-35) Smith shows the 3d picture contains associated geometry, scale and rotation information

Wherein the entire computer generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera; and (Smith column 10, lines 35-45) Smith teaches using a snapshot tool to sharpen and add depth to the picture to make it look more realistic as if captured by a camera.

Smith does not expressly teach:

Wherein the scene specification, made interactively over a digital communications network, supports the relatively rapid ray-traced rendering of a perspective view image having proper perspective, showing an object located and oriented within a 3D scene and (5) a camera position and orientation specified in the scene file

However, Technicon teaches a 3D photorealistic rendering device that implements the VRML standard, as taught by Schneider. Technicon teaches the 3D photorealistic generation of

images is performed by capturing the scene image and presenting the image in a browser. Technicon teaches it uses a **combination** of application products to render the image, which includes legacy data, AutoCAD application, and a VRML browser and a graphics server (See page 3, bottom). Schneider teaches the VRML standard teaches the manipulation of static scene files, shown at the perspective of the user along with a given camera angle and provides for rendering images in the browser with a variety of image quality levels (See Schneider page 2).

Accordingly, It would have been obvious to one of ordinary skill in the art, having the teachings of the applicant submitted prior art, Smith, Schneider and Technicon before him at the time of the invention was made, to modify the system of Smith to incorporate the online catalog as taught by Technicon, in order to obtain a system that is able to display the high-quality perspective view images. One would have been motivated to make such a combination because of the need to shorten sales cycles by viewing the images directly, reduce costs by obtaining sales online and eliminate product configuration errors as taught by Technicon.

With respect to **dependent claim 41,** the computerized method of generating and rendering a high-quality perspective view image wherein the iterations are further for texturing the object in the scene so as to develop texture parameters;

Wherein the communicating is also of the texture parameters; wherein the rendering of the second, high-quality perspective view image of the 3D object located and oriented in the 3D scene is further in consideration of the developed texture parameters. (Smith column 6, lines 1-25) Smith teaches the incorporation of texture features that can be modeled.

It is noted that any citation to specific, pages, columns, lines, or figures in the prior art references and any interpretation of the references should not be considered to be limiting in any way. A reference is relevant for all it contains and may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. In re *Heck*, 699 F.2d 1331, 1332-33,216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re *Lemelson*, 397 F.2d 1006,1009, 158 USPQ 275, 277 (CCPA 1968)).

Second rejection start HERE:

Claims 20-41 are rejected under 35 U.S.C. 102(e) as being unpatentable over in view of Korobkin et al. (hereinafter Korobkin) U.S. Patent No. 6912293 filed June 25, 1999.

In regard to **Independent claim 20**, Korobkin teaches a computerized method of generating and rendering over a digital communications network a high-quality perspective view of an object that can exist in the real world located within, surrounding, or in front of, a three-dimensional that can also exist in the real world, the method of presenting a perspective view image of an object in a 3D scene comprising:

- Producing or selecting at a first computer upon a digital network
  - An 3D model of the background, or, equivalently, precursors of the 3D background model, or, equivalently, one or more related 2D view of the background scene suitable to serve as precursors of the 3D background model (Korobkin figure 2 and column 2, lines 9-50) Korobkin teaches constructing from or mapping images to a 3D model where the images are scene data that are suitable for the model and the information is sent to a server to render the image in the scene.
  - For (1b) and (1c) associated dimensional information of the particular scene and (Korobkin column 6, lines 1-15 and column 7, lines 50-67 column 8, lines 1-45) Korobkin teaches associating via a map the dimensional information to the model.
  - A suitably- real world object positioned and oriented in the background scene (Korobkin Figure column 7, lines 40-50 and column 17, lines 20-67) Korobkin teaches importing an object into the scene and positioning it in the background.

- For which companion low-quality stand-in 3D models are derived or selected for use in rendering a preview image at the first computer (Korobkin column 21, lines 55-67) Korobkin teaches that a lower quality preview is superimposed and constructed in the client server system.
- Using scene editing software on the first computer to place the object in the scene, while rapidly rendering the scene at the first computer using the companion low quality stand-ins to guide the placement, a preview quality perspective view image of the object positioned and oriented in the background scene from the desired viewing angle and camera position for use in allowing a rapid, iterative evaluation and modification of the scene until the desired perspective view of the scene is obtained (Korobkin column 21, lines 55-67). Korobkin teaches constructing image mosaics that are lower quality models of the object in the scene. Korobkin specifically teaches using a camera position and viewing angle to construct the scene (See column 11, lines 40-67 and column 14, lines 15-55).
- Transmitting from the first computer upon the digital communications network the information (1)-(2) and the identity of the selected object and its location, orientation and other parameters; (column 38, lines 10-67).
- Receiving at another, second, computer upon the digital communications network the background scene information and object and parameters (Korobkin column 39, lines 42-67 and column 42, lines 15-67).
- Deriving in the second computer if not transmitted from the first computer a high-quality 3D background model the of represented and selected 3D background scene Korobkin column 39, lines 42-67 and column 42, lines 15-67).
- Utilizing in second computer the background scene information and the identified parameters and any derived high-quality 3D background-scene model to generate and render in consideration of a camera position and orientation, a perspective view image of

the selected object in the 3D scene (Korobkin column 39, lines 42-67 and column 42, lines 15-67 and column 43, lines 1-37).

- Transmitting from the second computer upon the digital communications network the perspective view image; and receiving at the first computer upon the digital communications network this perspective view image; and displaying at the first computer perspective view image (See figure 2 and column 38, lines 10-67 and figure 50).
- Wherein object, having associated geometry, is rendered with specified parameters in proper scale, position and rotation with the perspective view image (Korobkin column 7, lines 55-67)
- Wherein the entire computer generated perspective view image is rendered and viewed with the same proper perspective that a conventional photo of the same scene would exhibit, if captured by a camera (See column 22, lines 29-67).
- Wherein object selection, parameterization, placement and orientation in the scene made interactively over a digital network supports the generation of a perspective view image having proper parameterization and perspective showing an object located and oriented within a 3D scene (See column 42, lines 10-67 and column 6, lines 1-67).

With respect to **dependent claim 21,** Korobkin teaches the computerized method of generating and rendering a high quality perspective view image wherein the iterations are further for illuminating the object in the scene so as to develop lighting parameters; wherein the communicating is also of the lighting parameters; and wherein the rendering of the second, high quality perspective view image of the 3D object located and oriented in the 3D scene is further in consideration of the developed lighting parameters (Korobkin column 40,lines 1-63).

With respect to **dependent claim 22,** Korobkin teaches the computerized method of generating and rendering a high quality perspective view image wherein the iteration is further for specifying quality parameters of the object in the scene; wherein the communicating is also of the quality

parameters; and wherein the rendering of the second, high quality perspective view image of the object located and oriented in the scene is further in consideration of the specified quality parameters (See column 42, lines 14-67).

In regard to **Independent claim 23,** Korobkin teaches *a computerized method of generating and rendering over a digital communications network a high quality perspective view image of a three-dimensional (3D) object that can exist in the real world located within, surrounding, or in front of, a 3D scene that can also exist in the real world, the method of presenting a 3D perspective image of a 3D object in a 3D scene comprising*:

- o *Rendering at a first computer, communicative upon a digital communications network, a first, low quality, perspective image of a 3D object in a 3D scene* (Korobkin column 21, lines 55-67). Korobkin teaches constructing image mosaics that are lower quality models of the object in the scene. Korobkin specifically teaches using a camera position and viewing angle to construct the scene (See column 11, lines 40-67 and column 14, lines 15-55).
- *(1) a low quality 3D model of the suitably-real-world object,* (Korobkin column 42, lines 15-67)
- (*2) a relatively low quality 3D model of a selected suitably-real-world scene, in consideration of* (*3) a selected 3D coordinate position and angular orientation of the 3D object in the 3D scene*, (Korobkin Figure 16 and Figure 18 b)
- (*4) location and orientation of a camera view onto the scene* (Korobkin column 11, lines 40-67)

  - o *(5) Scene and object size;* (column 18, lines 1-30)
  - o (*6) Parameter of the scene lighting,* (column 40, lines 50-67)

- (7) Parameters of resolution of any one or both of the object and of the scene (Korobkin column 29, lines 11-35)

- Wherein this first, *low quality* perspective view image simply shows the 3D object located and oriented in the 3D scene (Korobkin Figure 18a 21 and 22) communicating from the first computer upon the digital communications network the information (1)-(7) to a second computer (Korobkin column 38, lines 1-67).
- From information (1), selecting in the second computer (1a) a high-quality 3D model of the selected suitably-real-world object, and from information (2), receiving at, selecting or generating in the second computer (2a) a high-quality 3D model of the selected suitably-real-world scene; rendering at the second computer a second, high-quality, perspective view image from (1) the high-quality 3D model of the selected object, or derivatives or extensions of this model, and (2a) the high-resolution 3D model of the scene, or derivatives or extensions of this model, in consideration of at least the information (3)-(7); (Korobkin Figure 2 and column 42, lines 15-67 and column 37, lines 20-67).
- Wherein the second, high-quality, perspective view image is a high-quality image of the 3D object in the 3D scene (Korobkin column 6, lines 10-67)
- Communicating from the second computer upon the digital communications network to the first computer the second, high-quality 3D perspective view image (Korobkin column 37, lines 20-67 and column 38, lines 1-50).
- Displaying at the first computer this second, high-quality perspective view image (Korobkin column 42, lines 10-67 and figure 48).

With respect to **dependent claim 24,** Korobkin teaches the method that a prospective purchaser of the suitably-real-world 3D object may be rendered the second, high quality perspective view of a 3D object that is a virtual object; wherein should the virtual object be made real in the world, then it would not merely suitably exist within the suitably-real-world

3D scene, but would suitably so exist as depicted in the second, photorealistic, perspective view image (See column 42, lines 10-67 and figure 48 and column 6, lines 25-35)

With respect to **dependent claim 25,** Korobkin teaches the method wherein the rendering at a first computer of the first, low quality, perspective view image is from (1) a low-quality 3D model of a scene derived at the first computer (column 6, lines 30-67 and column 37, lines 30-67).

With respect to **dependent claim 26,** Korobkin teaches the method wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality 3D model of the object received upon the communications network from the second computer as a model dynamically generated from specifications provided to the second computer by the first computer (Korobkin column 37, lines 30-67 and column 20, lines 50-67).

With respect to **dependent claim 27,** Korobkin teaches the method wherein the rendering at a first computer of the first, low-quality, perspective view image is from (1) a low-quality model of the object received upon the communications network from a third computer as a model from a pre-existing catalog of low-resolution 3D object models (Korobkin Figure 2 and column 36, lines 50-67).

With respect to **dependent claim 28,** Korobkin teaches the method wherein the rendering at a first computer of the first, low-quality, perspective view image is from (2) a low-quality 3D model of the scene received upon the communications network from the second computer as a model dynamically generated from specifications provided to the second computer by the first computer (Korobkin column 38, lines 1-67).

With respect to **dependent claims 29 and 30,** Korobkin teaches the method wherein the rendering at a first computer of the first, low-quality, perspective view image is from (2) a low-quality 3D model of the scene received upon the communications network from a third computer as a model from a pre-existing catalog of low-resolution 3D object models and where the real world object is an object for sale (Korobkin column 6, lines 20-67 and column 37, lines 25-67).

In regard to **Independent claim 31,** Korobkin *teaches a computerized method of generating and rendering over a digital communications network a perspective view of a three-dimensional object that can exist in the real world located within a three-dimensional space that can also exist in the real world, the method of presenting a perspective view image of a 3D object in a 3D space comprising*:

- Using at a client computer upon a digital communications network (1) one or more accurately-scaled 3D models representing one or more associated suitably-real-world 3D objects, and (2) an accurately-scaled model of a 3D scene in which 3D scene the suitably-real-world 3D objects can exist, (3) Associate scene and lighting parameters (4) associated placement and rotational information regarding where and at what positional attitude the one or more 3D objects are placed within the 3D scene (Korobkin column 42, 14-67 and column 6, lines 1-67) Korobkin teaches a client server system that allows the user to construct 3D models and creates a process of allowing the user to add objects to a scene and rendering the new object in the scene for the purposes of making purchasing decisions by viewing the object in the perspective of the users home location.
- Transmitting from the first computer upon the digital communications network the information (1)-(4); (Korobkin Figure 2, and column 36, 50-67)
- Receiving at another, second, computer upon the digital communications network the information (l)-(4); (Korobkin column 37, lines 20-67 and column 38, lines 1-50).
- In the second computer in accordance with at least the information (1) selecting or generating (1a) a detailed, model of the one or more 3D objects, in accordance with

at least the information (2) selecting or generating (2a) a detailed, model of the 3D scene, and in accordance with the (1a) and (2a) models, and information (3)-(4) and extensions thereof, a perspective view image of the one or more 3D objects properly scaled, located and oriented within the 3D scene (Korobkin column 37, lines 50-67 and column 6, lines 1-67).

- Then transmitting from the second computer upon the digital communications network this perspective view image (Korobkin column 38, lines 10-67)
- Receiving at the first computer upon the digital communications network this high quality perspective view and displaying at the first computer this high quality perspective view (Korobkin figure 48 and Figure 2 and column 6, lines 50-67 and column 7, lines 1-40).

With respect to **dependent claim 32,** Korobkin teaches the method exercised to the purpose that a prospective purchaser of one or more of the one or more suitably-real-world objects may be rendered the high-quality perspective view image where at least one of the one or more 3D objects is a virtual object not existing in the world, and which might only suitably exist within the suitably-real-world 3D scene; wherein even though at least one 3D object shown in the high-resolution 3D perspective view is virtual and does not actually exist, the 3D object both (i) could exist, and (ii) could exist as so shown within the high- quality perspective view (See column 6, lines 20-67 and column 43, lines 10-67).

In regard to **Independent claim 33,** Korobkin teaches a computerized method of producing a high resolution photorealistic 3D image on and between at least two computers communicating over a digital communications network, the method comprising:

- Providing from a server computer across a digital communications network to a client computer (i) a catalog of small, low-quality, 3D graphics models of objects and (ii) at least

one model of a scene in which the objects may exist (Korobkin figure 2 and column 8, lines 1-67).

- Selecting at the client computer one or more objects and at least one scene (Korobkin column 7, lines 50-67 and column 9, lines 29-67)
- Communicating these selections from the client computer across the communications network to the server computer (Korobkin figure 2 and column 40, lines 1-67)
- Responsively to receipt of the selections, providing from the server computer across the communications network to the client computer a set of at least the associated small, low-quality 3D models (See column 37, liens 45-67).
- Manually manipulating at the client computer spatial (i) positions and orientations of a selected one or more object models from the set of models (ii) within the at least one scene model, and rendering at the client computer from these object and scene models, a first, rudimentary, low-quality perspective view image of the one or more selected objects in the at least one scene, this low-resolution 3D image being used as a preview (Korobkin column 38, lines 15-67)
- From the received positional placements and orientations of the selected one or more objects, **camera parameters and** rendering in the server computer from associated large **high-quality 3D models** of the selected one or more objects and of the at least one scene, a **photorealistic**, 3D high-quality perspective image of the selected one or more objects located and oriented in the scene;

- Communicating, from the client computer across the communications network to the sever computer, at least camera and lighting and image size and resolution parameters, and positional placements and orientations of each of the selected and manipulated one or more objects in the at least one scene (Korobkin column 40, lines 1-67).

- Communicating from the sever computer upon the digital communications network to the client computer the photo realistically-rendered high-quality 3D perspective view composite image (See column 6, lines 20-67 and column 42, lines 10-67).
- Displaying at the client computer this photo realistically-rendered high-quality 3D perspective view image (See column 42, lines 42-67 and column 43, lines 1-37).

With respect to **dependent claims 34 and 36,** Korobkin teaches *the computerized method of producing a high quality photorealistic image wherein the photo realistically-rendered high-quality 3D composite image is suitable to serve as advertising copy, meaning in particular that it is devoid of clearly visible defects; wherein a 3D graphic artist of this photo realistically-rendered high-quality 3D composite image who performs selections and manipulations at the client computer need not have to attend to, and did not actually attend to, the building of the 3D models and any textures, or rendering which building transpired elsewhere* (See column 6, lines 10-67 and column 42, lines 10-67).

With respect to **dependent claim 35,** Korobkin teaches the computerized method of producing images wherein the building of the 3D models and any textures transpired in a model-building computer (See Figure 2) and teaches high quality photorealistic image processing (See column 42, lines 10-67 and column 29, lines 15-67).

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In regard to claims **37-41,** claims 37-41 reflects substantially similar subject matter as claims 20, 23, and 31, and in further view of the following, are rejected along the same rationale. Claim 37 mentions a business service that access a network to provide a **catalog** of small model of images where the objects may exist. Korobkin teaches a process of accessing several websites to access images of products that are sold. Korobkin teaches importing the images from a catalog of products for sale (See column 6, lines 10-67 and examples 1-3 in columns 40-42). Then accessing the 3D models located on the server and rendering the imported images of the products on the model and adapting the objects within the model to incorporate the product. The purpose of this process is to render the objects within the scene comprising the users home to allow the user to make a purchasing decision with a realistic presentation of how the product would look in the home. Korobkin also teaches computing the camera angles for the products and applying the camera parameters to the 2D and 3D models (See column 11, lines 50-67). Claim 38, claims a graphics server that is in communication with a light weight client to provide the high quality images. Korobkin teaches several configurations where the client and graphics server (See figure 2) can provide a light weight processing on the client to render the models (See column 38, lines 1-67). Claims 39 and 40 contain similar features of claims 20 and 23 with the camera lighting and high quality processing of models but add new features of ray trace rendering. Korobkin teaches a rendering process (See column 27, lines 50-67 and column 28, lines 1-16) that includes ray tracing (See column 8, lines 1-26 and column 6, lines 1-67).

Response to Arguments

Applicant's arguments with respect to claims 20-41 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN B. THERIAULT whose telephone number is (571)272-5867. The examiner can normally be reached on Mon.-Fri. 10 am - 7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on (571) 272-4847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Steven B Theriault/
Examiner
Art Unit 2179